From: Nova Clite
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Subject: FW: NHOU - Review of Hewitt Pit Submittals (final comments)
Date: Tuesday, September 08, 2015 3:07:44 PM

Kelly

On behalf of the OTIE team, please see the following review comments on the two recent submittals from CalMat/Vulcan in response to the LARWQCB's cleanup and abatement order 13267 for Hewitt Pit. For efficiency, we suggest that these comments either be addressed in a revision of the July submittal (with no revisions needed to the June submittal), or incorporated into the forthcoming Site Assessment Workplan which is to be issued within 30 days of issuance of the final Cleanup and Abatement Order by the Los Angeles Regional Water Quality Control Board (RWQCB).

JUNE 2015 SUBMITTAL – Field Implementation and Data Report:

CH2M conducted a review of the report, "*Field Implementation and Data Report (Revised), Hewitt Landfill, 7245-7361 Laurel Canyon Boulevard, North Hollywood District, Los Angeles, California* (Golder Associates [Golder], June 2015). This report is available on the California State Water Resources Control Board Geotracker website at the following link: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000004448.

Overview: The report is the first of two submittals to present procedures and results generated as a result of RWQCB's Investigative Order No. R4-2014-007 (January 31, 2014) and based on the "*Supplemental Investigation Workplan [Workplan], Hewitt Pit Landfill*" (Workplan, Golder, October 15, 2014). The Workplan was approved with conditions by the California Water Quality Control Board, Los Angeles Region (Regional Board) on November 13, 2014. This report presents the description of recently completed field activities, which consisted of installation of six new monitoring wells, one landfill lysimeter, 25 soil gas monitoring implants, sampling of the various monitoring locations through March 2015, and other related activities. The second report (referenced below) contains a more thorough evaluation of the data.

Comments:

1. General Comment. The report presents a broad overview of the field activities conducted as part of Workplan implementation. In general, information presented in the report is factual and data evaluation is purposely minimized. As a result, it is suggested that comments on this report be considered during preparation of subsequent reports (including the Site Assessment Workplan), to the extent possible.

2. Section 3.4.1, Monitoring Wells, Page 7. Provide a summary of any variances from the Workplan. For example:

- Provide a description of the rationale for the 40-ft. screen lengths in all new wells except MW-8D, when the Workplan (Section 2.2.2) seems to call for 20-ft. screen lengths in all but the nested well.
- Describe why the new shallow wells total depths of 325-338 ft. bgs exceed the target depth of 280 ft. bgs called for in the workplan, and why the top of well screens are 25 ft. or more below the water table surface, when the Workplan states that the wells screens will be 5-10 ft. below the water table. It would help to explain that the depth to water in the new wells ranges from approximately 272-282 ft. bgs (based on Table 2), and therefore the top of screens were generally placed at ~285 feet bgs.
- Describe why the wells in the cluster (MW-8S/-8D) were installed as separate 4-in. dia. wells rather than as two 2-in. dia. wells within the same borehole as called for in the Workplan.
- Clarify if the annular materials were poured from surface or installed via tremie pipe.

3. Section 3.4.2, Soil-gas Implants, Page 7. Similar to Comment #3, provide a summary of any variances from the Workplan. For example:
- Clarify if the coarse aquarium sand filter pack around each implant is the same as the 8/16 VC clean silica sand called for in the Workplan (Section 2.3).
- Describe the rationale for installing filter sand greater than 2 ft. above and below the implant.
- Clarify why the annular materials were poured from surface rather than installed via tremie pipe.
- Provide a description of the leak testing conducted to ensure an appropriate seal is present between the various intervals.
4. Section 3.6, Logging and Sampling Equipment Installation, Page 8. Provide the rationale and details for installation of a dedicated bladder pump at each new well location, when the Workplan (Section 3.1.3) states that groundwater samples will be collected with Hydrasleeves. Explain the rationale for pump placement, and in particular why the pump intake is placed only 5 ft. above the base of each well rather than near the top of middle of each screen (this may contribute to the elevated turbidity measurements in several groundwater samples collected in March 2015). Address if there is the need for vertical profile sampling to confirm the portion of the screened interval with the highest contaminant concentrations (at which the dedicated bladder pump can be set). Experience in sampling from other wells in the San Fernando Valley show that contaminant concentrations are often higher in the uppermost portion of the aquifer (e.g., Cr6).
5. Section 4.2.1, Sampling Methodology, Page 12. Verify if the drawdown during sampling was maintained at 0.3 ft. or less per general low-flow sampling methodology.
6. Section 4.4.1, (Soil Gas) Sampling Methodology, Page 16. Similar to Comments 2 and 3, provide a summary of any variances from the Workplan. For example:
- The maximum purge rate of 5 L/min. from the Workplan appears to have been exceeded at some locations (the forms in Appendix J show purge rates of up to 15 L/min.).
- A sampling flow rate of less than or greater than the Workplan target of 200 ml/min appears to have been used at some locations.
- Verify if the leak test compound 1,1-DFA was analyzed for in the collected samples (Table 8 does not appear to include this compound).

JULY 2015 SUBMITTAL – Supplemental Data Evaluation Report:

CH2M conducted a review of the report, "*Supplemental Data Evaluation Report, Hewitt Site, 7245-7361 Laurel Canyon Boulevard, North Hollywood District, Los Angeles, California* (Golder], July 2015). This report is available on the California State Water Resources Control Board Geotracker website at the link above. Although the report is dated July 31, 2015, it was not available for review on Geotracker until the week of August 10, 2015.

Overview: The Report is the second of two submittals to present results generated as a result of RWQCB's Investigative Order No. R4-2014-007 (January 31, 2014) and based on the Workplan referenced above. This report is far more comprehensive than the June submittal, and presents results and evaluation of data from samples collected through June 2015. The installation details presented in the June 2015 deliverable (referenced above) are not repeated in this report. The report also presents soil vapor modeling results, and bullets with additional work needed to fill data gaps. CalMat plans to submit a Site Assessment Workplan detailing the future work, within 30 days of RWQCB's finalization of the Cleanup and Abatement Order.

Comments:

1. General Comment. The Report presents a more detailed overview of work conducted as part of Workplan implementation, and presents additional data gaps that need to be filled prior to selecting

an interim remedy for the Site. In general, information presented in the report is factual and the data evaluation is fairly complete.

2. Executive Summary, Page ES-1, 2nd Paragraph. In the first sentence, it should be made clear that this report provides additional information only on the "supplemental" investigation performed to date (and therefore is not intended to provide an overview of all prior studies).

3. ES-1.1 Site Description, Page ES-2, end of paragraph. The last sentence states "Further research of potential off-site sources is ongoing." Clarify the parties conducting this further research (e.g., EPA, RWQCB, CalMet, etc.).

4. ES-1.3.1 Hydrogeology, Page ES-2, 2nd sub-bullet. It should be clarified that the vertical hydraulic gradient is downward, as called out in Section 8.2.2.3.

5. ES-1.3.2 Soil and Refuse Chemistry Data Page ES-4,1st bullet. It should be acknowledged here (and in the main text) that the detected VOCs included area-wide COCs tetrachloroethene (PCE) and trichloroethene (TCE).

6. ES-1.3.4 Groundwater Geochemistry, Page ES-5, 3rd sub-bullet. This sub-bullet states "PCE exceeded the CA MCL of 5 ug/L in groundwater from all sampled wells except MW-8D." It should also be stated that TCE exceeded the CA MCL of 5 ug/L in groundwater from all recently sampled wells except MW-8D (and MW-9 during the March 2015 sampling event).

7. ES-1.3.4 Groundwater Geochemistry, Page ES-5, 5th sub-bullet. This sub-bullet lists 4 additional VOCs (in addition to PCE and TCE) that exceed the CA MCL. Only 3 of these additional VOCs are presented on Figure 5, and it is suggested for completeness and consistency that the 4th VOC (1,2-dichloroethane) be added to Figure 5.

8. ES-1.3.5 Landfill Lysimeter Chemistry, Page ES-6. Based on Table 11 which presents lysimeter analytical results, several metals were found at concentrations above CA MCLs or action levels, including arsenic, barium, chromium, lead, nickel, and selenium. This finding should be acknowledged in this ES section and/or Section 6.5 of the main text. The elevated metals concentrations may be associated with the "metal scraps" and other debris observed in the MW-10 well installation borehole, as noted in Sections ES-1.6.1 and 8.2.1.2.

9. ES-1.6.3 Nature and Extent of Contamination, Page ES-8, 2nd paragraph. The 1st sentence refers to the presence of PCE and TCE in "upgradient wells", although the prior section refers to variability in groundwater flow direction (e.g., generally to the SE regionally, but locally to the SW or NW based operations of the LADWP North Hollywood West and Rinaldi-Toluca well fields). Therefore, wells may or may not be upgradient depending on the flow direction, and it should be acknowledged that even "upgradient" wells under the SE regional flow regime may be impacted by site operations during LADWP pumping operations from the referenced well fields. Also see Comment No. 16 below as related to Section 8.3.2.

10. Section 4.0 Geophysical Logging and Regional Hydrostratigraphic Correlation. This section refers to the Data Gap Analysis Report prepared by AMEC Foster Wheeler in 2012 as the source of the regional hydrostratigraphic diagram presented in Appendix A of this report. To bring the reference up to date, it should be replaced with the Final Groundwater Modeling Memorandum (AMEC Foster Wheeler, July 2015), which includes the same, unchanged, correlation diagram.

11. Section 4.2 Regional Geologic Correlation, Page 7, 1st paragraph. The second to last sentence states that the base of the B zone (at 300 to 325 feet amsl) was not encountered in deep well MW-8D; it should be clarified that this was because MW-8D was drilled to only 360 feet amsl (not deep enough to encounter the base of the B zone).

12. Section 5.1.1 Temporal Groundwater Data, Pages 9-10 . This section asserts that the regional LADWP pumping appears to result in relatively consistent water level responses from well to well, indicating no marked localized effect on any particular well. However, based on the hydrograph in Appendix B, the water level in MW-5 shows a more significant drop on ~April 10 compared to other site wells, and MW-9 shows a more significant increase on ~May 10 compared to other site wells. These two wells are at the southern portion of the site and therefore closest to the NHW well field, and it may be helpful to review pumping records to further assess potential influences on groundwater flow direction.

13. Section 5.2 Pneumatic Slug Testing, Page 11, 3rd paragraph. It is recommended that the following text from Appendix D (which present the pneumatic slug testing results) be added to the 3rd paragraph (or as a new 4th paragraph) to acknowledge the limitations of this type of test: "*The pneumatic slug test is only able to test a very small area of the aquifer compared to the size of the entire aquifer system. For this reason, data should be considered approximations of the Zone B Site-scale hydrostratigraphic properties, but further testing, analysis and refinements will continue to provide data to help inform the data collected."*

14. Section 7 Subsurface Soil Vapor Transport Modeling, Section 8.4.2 Soil Gas Phase, and Appendix F – Vadose Zone Pressure Monitoring and Soil Gas Transport Modeling. This text and lengthy appendix which present the approach and results of soil vapor modeling efforts. The main conclusion appears to be that the landfill's gas extraction system exerts negative pressures that influence the lateral migration of TCE and PCE and attenuate these concentrations. The text and appendix were not subject to a detailed review at this time, mainly because of forthcoming soil vapor assessment as called for in Section 9.0. Further updates to the modeling may be warranted and therefore may be subject to a detailed review at a later time.

15. Section 8.2.2.2, Groundwater Elevation, Pages 33-34. The determination of groundwater flow directions is limited by the presence of 4 wells that have been dry (MW-3, -4, 4899, and 4909FR), and this should be acknowledged in the text. Also, the groundwater elevation contour maps are in Appendix C (not Appendix B as indicated in the text).

16. Section 8.3.2 Groundwater, Page 35 and following. The nature and extent for groundwater addresses ionic composition (8.3.2.1) and the water impact signatures for chloride and 1,4-dioxane (8.3.2.2.1) and other emerging contaminants (8.3.2.2.2), but does not directly address VOCs, primarily PCE and TCE. It would also be helpful if this section would further address groundwater flow conditions as related to LADWP's well field pumping scenarios, as called out in Comment 9 above. Section 8.3.2.2.1 (3rd paragraph) states that "*although the data set is limited, this observation strongly supports a model for groundwater flow that oscillates from northwest to southeast in response to pumping cycles. With respect to contaminant transport, the null zone, or zone of interference of interference from the well fields, may limit and help control the development of large, linear plumes as one would normally expect in a hydrogeologic environment where the gradient is dominated by one general flow direction. In contrast, the oscillation of the very flat gradient results in a plume front that is advances and retreats and grows very slowly or is "smeared" over time*." The groundwater flow observations presented in Section 8.3.2.2.1 warrant discussion in a new subsection (rather than being "hidden" in this section), and would likely apply to transport of all or nearly all constituents (including VOCs), rather than being limited to 1,4-dioxane.

17. Section 9.0 Data Gaps and Future Work, Page 41. In general, the list of proposed work to be included in the forthcoming Site Assessment Workplan appears to be complete, although

clarification on the following is suggested:
- Clarify if wells will be installed to replace the 4 dry wells and therefore provide better water quality and flow information.
- Clarify if the treatability study of site groundwater will be bench scale and/or field/pilot scale.
- Confirm if the groundwater modeling will include both flow and transport evaluation, and if transport modeling is included then consider estimating the flux/concentrations of water that infiltrates through the landfill refuse and reaches groundwater.

18. Table 6 – Gas Extraction Well Data. The location of the IW series wells is unclear, since they are not shown on Figure 4 (from Appendix G, these are referred to as the interior extraction wells). Also, the depths of the PW series wells are not presented (are depths unavailable?). Finally, it would be useful if the report included construction details on all wells associated with the landfill gas extraction system, including identification of those extraction wells that are in operation and those that are not (either as part of the main tables, or in Appendix G).

19. Figure 3 – AMEC (2012) Cross-Section E-E' with MW-8B Interpreted Contact between A and B Zones. It is recommended that the figure include the screened interval (392-402 feet bgs) of MW-8B.

20. Appendix B – Hydrographs and Gradient Plots. This appendix contains 3 figures which are useful to evaluate groundwater flow conditions. However, they should be properly labeled with figure numbers (e.g., C-1 through C-3) and appropriately referenced in the text (especially Section 5.1.2.1).

21. Appendix G – Landfill Gas Extraction System Evaluation. It would be useful to include trend plots for flare inlet methane and non-methane organic compound concentrations, to show how these have changed over time. Similar trend plots for extraction or perimeter monitoring wells (that may have such data) would also be useful.

Please let us know of any questions.

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